OFFICE MANAGEMENT

ADDING

MACHINE

PLUS
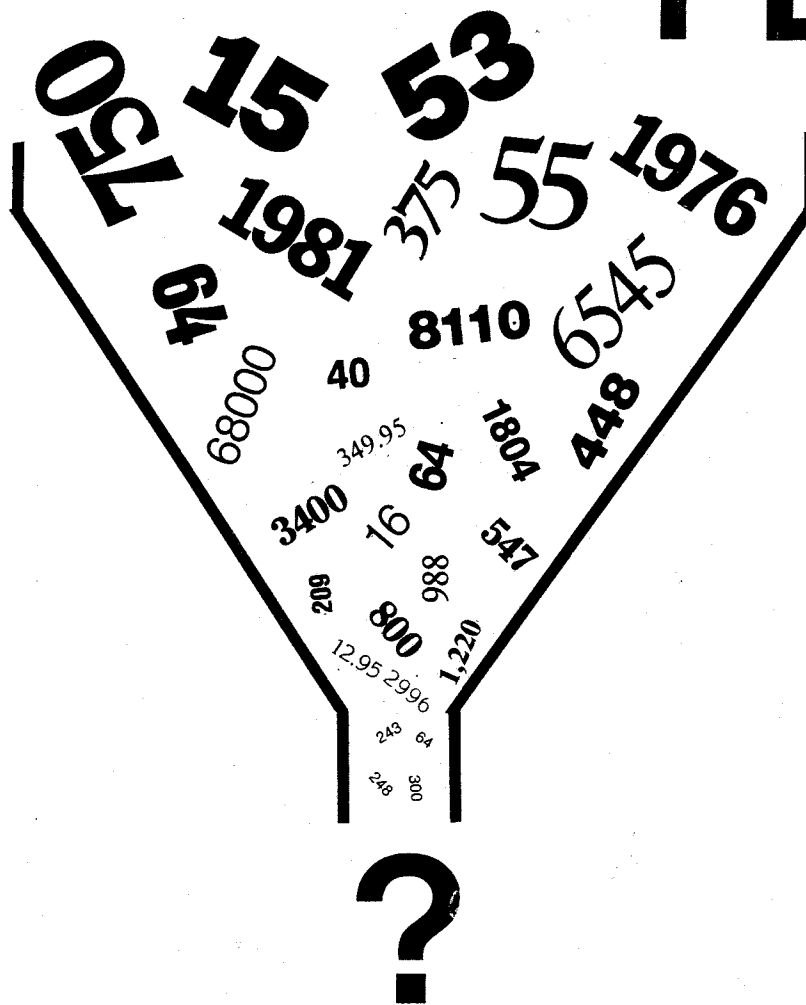
FOR SHARP PC-1211
RADIO SHACK TRS-80

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PURPOSE OF PROGRAM

The Adding Machine program has two major purposes:

1. Transforms your pocket computer into a four function printing calculator, showing amounts entered and the arithmetic operations used.

2. Adds the features needed for specific applications in science or business such as subtotals, and prose identification of each number entered.

While the program is more useful when operated with a printer, it may be used without one.

DESCRIPTION

When the program is started it asks for the options you wish to use: printer, named subtotals and their names, and amount identification.

The named subtotals option lets you give names to each of the 8 memories allocated for this purpose. The amount identification option lets you annotate each number with a prose identification. Thus your printed audit trail will identify some or all of the numbers entered.

There are arithmetic operations for additition, subtraction, multiplication, and division. You can add/subtract to or from any of the subtotal memories, store/retrieve to or from any of them and print the content of any.

LOADING THE PROGRAM FROM THE TAPE CASSETTE

Connect the computer to the cassette recorder and adjust the recorder according to the computer manual. Turn on the computer. Insert the tape, rewind it, advance the tape an inch beyond the tape leader, and put the recorder into PLAY mode. The tape should not move, since it will be controlled remotely by the computer.

Place the computer in the DEF mode. Type:

    NEW and press the ENTER key to clear memory.
    CLOAD "1" and press the ENTER KEY.

The tape should now begin to move. When it has stopped (about two minutes and 15 seconds), the prompt > should appear on the display. If 5 . . . is displayed instead, rewind the tape and repeat the load procedure, or read the computer manual.

If the tape runs to the end or beyond two minutes 15 seconds without the

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computer displaying anything, the program was not found. You must press the ON key to regain control of the computer. Try loading again, making sure that you type the command CLOAD "1" correctly.

STARTING THE PROGRAM

The computer should still be in the DEF mode. Type:

RUN and press the ENTER key.

The program will identify itself on the display;

ADDING MACHINE PLUS 1.n   (The n.n is a number identifying the
                                            version of the program.)

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and then ask its first question:

PRINTER (Y/N)?

RESTARTING THE PROGRAM

When the computer is turned off, the data you have already entered remains intact. Thus, when turning the computer on again, you can go directly to the selected section of the program, eliminating re-entry of the original data. After turning the computer on and placing it in DEF mode, press SHFT followed by the N key to do another operation.

ENTERING INFORMATION INTO THE COMPUTER

Displayed messages that are followed by a "?" mean that a typed response is expected from you. After entering the response, press the ENTER key... this tells the computer that your response is complete. If you have already answered a question, and don't need to change the value, just press the ENTER key. (There may be some exceptions to this rule as noted in the text.)

The CL, DEL and INS keys may be used to correct your response prior to pressing the ENTER key. Refer to the computer's instruction manual.

Sample formats for values that you enter:

Numbers: 50000
            200.35

Answers to yes/no type questions: Y or N

Answers to other questions: The first letter of the answer.

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Other displayed messages will not contain a "?". This is a report to you. After reading it, and perhaps making a written note, press the ENTER key to continue.

To restart if a mistake was made, either press the ON key then type RUN, or press SHFT and a letter key (see "Additional Features For Easier Use").

SAMPLE APPLICATIONS

1. Let's say that you want to sum a set of numbers; in other words, do a standard adding machine function. Furthermore, you'd like an audit trail on paper that can be kept for reference.

   Activate the printer.

Computer displays	You type	Comments
PRINTER(Y/N)?	Y	Use the printer.
USE ID OPTION(Y/N)?	Y	Let each number be identified.
USE MEMORY NAMES(Y/N)?	N	Do not assign names to subtotals.
SCALE (2,4,E)?	2	Numbers are to be displayed with 2 fractional digits.
OPERATION?	press ENTER	This clears the immediate memory to start you at the beginning.
RESTART		Prints to tell you this.
NUMBER?	25.95	Enter your first number.
ID OF NUMBER?	SEARS	The source of this number is related to (paid to, received from, etc.) SEARS.
<> SEARS -> 25.95		Prints to identify source. Prints first number entered.
OPERATION?	+	Add.
NUMBER?	15.10	Add 15.10.
ID OF NUMBER?	POSTAGE	The source of this number.
<> POSTAGE + 15.10		Prints to identify source. Prints number entered.

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OPERATION?	-	Subtract.
NUMBER?	3	Subtract 3.
ID OF NUMBER?	ERROR	Entered because of a mistake.
<> ERROR - 3.00		Prints to identify source. Prints number entered.
OPERATION?	=	Now you want to get the total.
= 38.05		The total prints.

A copy of the actual printout from this example follows:

```
RESTART
<> SEARS
->        25.95
<> POSTAGE
+         15.10
<> ERROR
-          3.00
=         38.05
```

2. This example assumes that you want to use the program as a four function calculator with memory.

Computer displays	You type	Comments
OPERATION?	press SHFT C	Display the ID option question.
USE ID OPTION (Y/N)?	N	Don't use this option.
USE MEMORY NAMES(Y/N)?	N	Don't use memory names.
SCALE(2,4,E)?	2	Results should have 2 fractional digits.
OPERATION?	press ENTER	Clear local memory.
RESTART		Prints.
NUMBER?	55	First number.
-> 55.00		Prints.
OPERATION?	*	Multiply.
NUMBER?	6.2	By 6.2.

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* 6.20		Prints.
OPERATION?	+	Add 156.
NUMBER?	156	
+ 156.00		Prints.
OPERATION	/	Divide.
NUMBER	.33	By 0.33.
/ 0.33		Prints.
OPERATION?	TM	Store this into memory.
MEMORY(A-H)?	A	Use memory A.
TA 1506.06		Prints the amount stored into memory A.
OPERATION?	press ENTER	Clear local memory.
RESTART		Prints.
NUMBER?	2500	Enter 2500.
-> 2500.00		Prints.
OPERATION?	+	Add 1300.
NUMBER?	1300	
+ 1300.00		Prints.
OPERATION?	+M	Get the contents of a memory and add to local memory.
MEMORY(A-H)?	A	Use contents of memory A.
+A 1506.06		Prints to show what you get from memory A.
OPERATION?	=	Get total.
= 5306.06		The total prints.

Following is a copy of the actual printout from this example:

```
RESTART
->          55.00
*            6.20
+          156.00
/            0.33
TA       1506.06
```

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```
RESTART
->      2500.00
+       1300.00
+A      1506.06
=       5306.06
```

3. Let's say that you are doing an experiment which involves measuring several events. You'd like to total the measurements of each event.

Computer displays	You type	Comments
OPERATION?	press SHFT and V	Use memory names to identify the subtotals.
USE MEMORY NAMES(Y/N)?	Y	
WHICH MEMORY(A TO H)?	A	Use memory A.
NAME(1-7 CHARS)?	SMPL #1	Label it "sample number one".
WHICH MEMORY(A TO H)?	B	Use memory B.
NAME (1-7 CHARS)?	SMPL #2	Label it "sample number two".
WHICH MEMORY(A TO H)?	C	Use memory C.
NAME(1-7 CHARS)?	SMPL #3	Label it "sample number three".
WHICH MEMORY(A TO H)?	press ENTER	Finished labeling memories.
SCALE(2,4,E)?	E	Change the print format to exponential notation.
OPERATION?	press ENTER	Clear local memory.
RESTART		
NUMBER?	2.3528	Observation from the second sample.
-> 2.3528000E 00		Prints.
OPERATION?	+	Add.
NUMBER?	.148	Another observation for the same sample.
+ 1.480000E-01		Prints.

OPERATION?	TM	Store it into memory.
MEMORY(A-H)?	B	Use memory B.
SMPLE #2 TB 2.5008000E 00		Prints and shows what you have stored into memory B.
OPERATION?	press ENTER	Another sample.
RESTART		
NUMBER?	56.215	Observation for sample 1.
-> 5.6215000E 01		
OPERATION?	TM	Store it into memory A.
MEMORY(A-H)?	A	
SMPL #1 TA 5.6215000E 01		Prints.
OPERATION?	press ENTER	Another sample.
RESTART		
NUMBER?	.0125	Observation for sample 2.
-> 1.2500000E-02		
OPERATION?	M+	Add this to already existing data for sample 2.
MEMORY(A-H)?	B	
SMPL #2 B+ 2.5133000E 00		New value of sample 2's data.
OPERATION?	press ENTER	Clear local memory.
RESTART		
NUMBER?	.00725	Enter numbers for sample 3.
-> 7.2500000E-03		
OPERATION?	*	There were 3 observations of the same value.
NUMBER?	3	

```
*   3.0000000E 00
```

OPERATION?   TM   Store this in memory C.

MEMORY(A-H)?   C

SMPL #3
TC 2.1750000E-02   Current value of memory C.

OPERATION?   PM   Now print the contents of the
                                                3 memories.

MEMORY(A-H)?   A

SMPL #1
PA   5.6215000E 01

OPERATION?   PM

MEMORY(A-H)?   B

SMPL #2
PB   2.5133000E 00

OPERATION?   PM

MEMORY(A-H)?   C

SMPL #3
PC 2.1750000E-02

A copy of the printout of this example follows.

```
                         RESTART
                         -> 2.3528000E 00
                         +  1.4800000E-01
                         SMPL #2
                         TB 2.5008000E 00
                         RESTART
                         -> 5.6215000E 01
                         SMPL #1
                         TA 5.6215000E 01
                         RESTART
                         -> 1.2500000E-02
                         SMPL #2
                         B+ 2.5133000E 00
                         RESTART
                         -> 7.2500000E-03
                         *  3.0000000E 00
                         SMPL #3
                         TC 2.1750000E-02
                         SMPL #1
                         PA 5.6215000E 01
                         SMPL #2
                         PB 2.5133000E 00
                         SMPL #3
                         PC 2.1750000E-02
```

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EXPLANATION OF DISPLAYS

There are 8 subtotal memories into which you can store, retrieve, add or subtract numbers. The memories are labelled A to H. Optionally, you can give each subtotal a name for easier identification.

There is also a local memory in which most of the numerical calculations take place.

Computer displays	Explanation
PRINTER(Y/N)?	Type Y (yes) if you want output on the printer. Make sure the printer is activated.
	Type N (no) if you do not want output on the printer.
	Press ENTER to bypass the question, thus leaving the answer as it was.
USE ID OPTION(Y/N)?	Type Y (yes) to be able to identify each number with a name or source.
	Type N (no) to bypass this option.
	Press ENTER to leave the selection as it is currently.
USE MEMORY NAMES(Y/N)?	Type Y (yes) to assign prose names to the subtotal memories.
	Type N (no) to not use names. All former names are erased.
	Press ENTER to leave the name assignments as they currently are.
WHICH MEMORY(A TO H)?	There are 8 subtotal memories available, labelled A through H. Select the memory to which you want to assign a name by typing its letter.
	Press ENTER if you are finished making assignments.

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NAME(1-7 CHARS)?	Type the name you want to assign to the subtotal.
	Press ENTER if you do not want to assign a name, or change an earlier assignment.
SCALE (2,4,E)?	This determines the displayed/printed format of numbers.
	Type 2 for numbers with two fractional decimal digits. The maximum size number is 999,999,999.99.
	Type 4 for numbers with four decimal fractional digits. The maximum size number is 99,999,999.9999.
	Type E for numbers to be expressed in scientific, or exponential, format. The maximum number of significant digits is 8.
OPERATION?	Press ENTER if you are just starting a calculation. This will clear the local memory to zero. The phrase RESTART is displayed.
	Type one of the following commands:
	press ENTER Restart.
	= Print the contents of local memory.
	+ Add.
	- Subtract.
	* Multiply.
	/ Divide.
	+- Change the sign of the number in local memory.
	M+ Add to a subtotal memory.
	M- Subtract from a subtotal memory.
	+M Add a subtotal memory.

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-M	Subtract a subtotal memory.
TM	Store a number into a subtotal memory.
FM	Get a number from a subtotal memory.
PM	Print the contents of a subtotal memory.
NUMBER?	Type the initial number of a calculation, or the number on which you want to do an operation. If ENTER is pressed, the OPERATION question is redisplayed.
ID OF NUMBER?	If you selected the identification option, this question will display. Type any identification up to 7 characters. This will be printed. Just press ENTER if no identification is desired.
MEMORY(A-H)?	This question is displayed whenever a subtotal memory command is entered. Type the letter of the memory you want to use. To cancel a memory command, just press ENTER. The OPERATION question is redisplayed.

SUGGESTIONS FOR EASIER USE

1. Fractional decimal digits.

   You can enter more than the number of fractional digits indicated by the SCALE question. They will be used in the calculation. However, only the SCALE specified number will be printed.

   You can switch between SCALE sizes with no loss of data. Just type SHFT and X to get to the SCALE question. The computer must be in DEF mode.

2. Erroneous operation.

   If you select the wrong operation, you can cancel it by pressing SHFT and N. The computer must be in DEF mode.

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3. Resetting parameters.

    The parameters of the program's operation may be reset at any time. Just
    press SHFT and the appropriate letter key (see reference guide) or start
    program at the beginning.

UNUSUAL HAPPENINGS

1. Incorrect or suspicious answers.

    This is caused by entering incorrect data (for example, .12 instead of 12
    for twelve percent), forgetting to enter a value and just pressing ENTER,
    entering a logically inconsistent value, entering a letter when a number
    is expected, or using a SHFT key option illogically.

    When this occurrs, just restart the program, (refer to the section
    "Restarting the Program") taking careful note of all values entered.

2. Computer error displays such as 1 . . . or 6 . . ., etc.

    This is usually caused by entering a zero for a value that should not be a
    zero, entering a number when a letter is expected and vice versa. or
    pressing an illegal letter key with SHFT. Start the program over.

    It can also happen when you type a response to a display that is not a
    question. That is, the computer is expecting only the ENTER key to be
    pressed. In this case just press the CL key and then the ENTER key.

    This could also be caused by not typing NEW and the ENTER key prior to
    loading the program from cassette. If restarting the program doesn't
    solve the problem, then re-load the program from cassette.

3. Incorrect selection of an option.

    This is due to typing the wrong letter or typing more than one letter (for
    example, typing YES instead of Y).

4. The SHFT selection feature causes an error message or doesn't work at all.

    The computer must be in DEF mode. Check that a correct letter key was
    pressed.

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REFERENCE GUIDE

This guide is a brief overview of the program's opertion.   Refer to other sections of this manual for detailed instructions.

Press SHFT key and	Display	Comments
Z	PRINTER(Y/N)?	
C	USE ID OPTION(Y/N)?	
V	USE MEMORY NAMES(Y/N)? WHICH MEMORY (A TO H)? NAME (1-7 CHARS)?	Press ENTER when done.
X	SCALE(2,4,E)?	
N	OPERATION?	Press ENTER to start a new calculation. The operations are: +, -, *, /, +-, =, M+, M-, +M, -M, TM, FM, PM.
	NUMBER?	
	ID OF NUMBER?	Optional feature.
	MEMORY (A-H)?	Only for memory operations.

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